

**REMARKS**

In response to a Notice of Non-compliant Amendment, above please find a claims section now including reference to canceled claims 1 to 17. Applicants apologize for the informality of Applicants' April 12, 2004 Amendment and RCE submission. The Amendment is included here for the Examiner's convenience; and a copy of the RCE is also attached.

Claims 18 to 36 are now pending. Claims 18 to 20, 22 to 26 and 28 have been amended above. No new matter has been added. Above, any amendments to the claims are shown by underlining (additions) and strikeout (deletions).

Applicants respectfully request reconsideration of the present application in view of this response.

**35 U.S.C. § 112, Second Paragraph**

The rejection under 35 U.S.C. § 112, second paragraph, of claims 18 to 36 was maintained in the Advisory Action. Specifically, claim 18 was rejected for reciting "wavelength deviation" and that "respective resistance" values are "selectively changed."

Applicants have amended claim 18 above for further clarification purposes. No new matter has been added. Claim 18 was amended to recite "the respective wavelength deviation being the difference between the respective measured wavelength and the respective desired characteristic wavelength of each optoelectronic component" and "selectively setting a respective resistance value.... so as to achieve a respective thermal change of the respective resistance heater for setting the respective desired characteristic wavelength of each of the at least two optoelectronic components." Claims 19, 20, and 22 to 26 were amended to recite proper antecedent bases in light of the amendment(s) to claim 18. No new matter has been added.

Claim 28 was rejected for being unclear within the claim structure as to how the wavelength tuning is accomplished. Claim 28 was amended to recite "the wavelength tuning being effected by changing the respective total resistance" for further clarification. In fact, claim 28 also recites a structure within the device of claim 28 that to accomplish wavelength tuning, "a respective resistor arrangement [is] connected between each respective at least one resistance heater and the common voltage or current source, a respective total resistance of each respective resistor arrangement being variable so as to allow for wavelength tuning...."

Applicants believe that the amendments to claim 18 and claim 28 further clarify any indefiniteness identified by the Examiner, and that Applicants' amendments to claim 18 and claim 28 define the subject matter with a reasonable degree of particularity and distinctness. If the claims are still found to be indefinite, Applicants respectfully encourage and request that the Examiner suggest possible claim language to Applicants to improve the clarity or precision of the language used, as recommended in the MPEP. See MPEP §2173.02.

Accordingly, Applicants respectfully submit that amended claims 18 and 28, and their dependent claims 19 to 27 and 29 to 36 are allowable, and request withdrawal of the rejection under 35 U.S.C. § 112, second paragraph, of claims 18 and 28, and their dependent claims 19 to 27 and 29 to 36

### 35 U.S.C. § 103(a)

The rejection under 35 U.S.C. § 103(a) over Japanese Patent No. 59-204292 to Hazemoto et al. ("Hazemoto reference") of claims 28 to 36 was maintained in the Advisory Action.

The Hazemoto reference (according to the Abstract and Figures provided with the Office Action) purportedly concerns a semiconductor device in which the temperatures of a plurality of semiconductor light emitting elements on the same substrate are independently controlled "to obtain lights of a plurality of wavelengths." The Hazemoto reference refers to using an array of semiconductor elements on a substrate where a heating part independently provided to each laser has an insulation member, a heat generating member, an electrode and a protection film. Apparently, the temperature adjusting part has a supporting member, a temperature sensitive element detecting the temperature of the supporting member, a thermoelectric element heating and cooling the member based on information from the temperature sensitive element, and a heat dissipating fin to diffuse heat from the thermoelectric element to the atmosphere. (See Abstract, Hazemoto reference). The oscillation wavelength of the semiconductor laser is purportedly independently controlled by changing the current impressed on its heat generating member. (See Abstract, Hazemoto reference).

Amended claim 28 recites:

A device for the wavelength tuning of an optoelectronic component array having at least two optoelectronic components, the device comprising:

a respective at least one resistance heater associated with each of the at least two optoelectronic components for setting a respective characteristic wavelength of

the respective optoelectronic component;  
a common voltage or current source; and  
a respective resistor arrangement connected between each respective at least one resistance heater and the common voltage or current source, a respective total resistance of each respective resistor arrangement being variable so as to allow for wavelength tuning, the wavelength tuning being effected by changing the respective total resistance.

In contrast, the Hazemoto reference does not teach or suggest the features of claim 28, including 1) requiring a device having a respective resistance heater associated with each of the at least two optoelectronic components, the respective resistance heater being used for setting a respective characteristic wavelength of the optoelectronic component. Further, the Hazemoto reference also does not teach or suggest 2) using a respective resistor arrangement connected between a resistance heater and a common voltage or current source, nor does the Hazemoto reference teach 3) varying the total resistance of the resistor arrangement so as to allow for wavelength tuning. In fact, the Hazemoto reference apparently teaches a method for obtaining lights of a plurality of wavelength by independently controlling the light emitting elements on the same substrate. (See Abstract, Hazemoto reference) And, the Hazemoto reference uses a temperature adjusting part having a supporting member, a temperature sensitive element to detect the temperature of the supporting member and a thermoelectric element to heat and cool the supporting member based on information from the temperature sensitive element, as well as a heat dissipating fin to diffuse heat from the thermoelectric element. (See Abstract and Figure, Hazemoto reference) Further, the Hazemoto reference purports to independently control the oscillation wavelength of the semiconductor laser by changing the current impressed on the heat generating member. ***Thus, the Hazemoto reference does not teach or describe at least THREE features as recited in claim 28.***

***Further, Applicants respectfully submit that In re Stevens does not apply here. Applicants believe that the Advisory Action is misguided in stating that "it would have been obvious to one of ordinary skill in the art... to modify Hazemoto et al. to include variable resistance arrangements to vary the heat of the laser diodes and therefore the wavelength, since it has been held that the provision of adjustability, where needed, involves only routine skill in the art. In re Stevens, 101 USPQ 284 (CCPA 1954). In re Stevens, 101 USPQ 284 (CCPA 1954) concerns an elongated reel-supporting body having a hand grip which is universally adjustable and a finger grip which is longitudinally adjustable. Id. at 285. The question presented in the In re Stevens case is "whether or not the two mentioned differences from the conventional fishing rod produce a combination not suggested by the prior art and***

whether the result of such combination is not inherent in either of said adjustments.” (Emphasis added). *Id.* The CCPA held that the use of the adjustable handgrips were suggested by the patents cited in the case. *Id.* This is not the situation in the present application. Instead, the Advisory Action inadvertently attempts to “create” at least THREE additional features out of thin air, namely, 1) requiring a device having a respective resistance heater associated with each of the at least two optoelectronic components, the respective resistance heater being used for setting a respective characteristic wavelength of the optoelectronic component; 2) using a respective resistor arrangement connected between a resistance heater and a common voltage or current source; and 3) varying the total resistance of the resistor arrangement so as to allow for wavelength tuning, as in claim 28.

Accordingly, Applicants respectfully submit that the Hazemoto reference does not teach or suggest all of the features of claim 28, as discussed above. And since claims 29 to 36 depend from claim 28, those claims are allowable for the same reasons as for claim 28. Withdrawal of the rejection of claims 28 to 36 is respectfully requested.

The rejection under 35 U.S.C. § 103(a) over the Hazemoto reference in view of U.S. Patent No. 5,373,515 to Wakabayashi (“Wakabayashi reference”) of claims 18 to 27 was maintained in the Advisory Action.

Claim 18 recites features analogous to those of claim 28. Accordingly, claim 18 is allowable for essentially the same reasons as claim 28, as outlined above and discussed below. In particular, the Hazemoto reference does not teach or suggest the method for wavelength tuning an optoelectronic component array features of claim 18, requiring comparing a respective measured wavelength of the optoelectronic component array with a desired characteristic wavelength so as to determine a wavelength deviation for the optoelectronic components. Moreover, the Hazemoto reference does not teach or suggest the claim 18 method step of selectively setting a resistance value of a resistor arrangement connected between the optoelectronic components and a resistance heater associated with the optoelectronic components so as to achieve a thermal change of the resistance heater for setting the desired characteristic wavelength of the optoelectronic components. Instead, the Hazemoto reference apparently teaches a method for obtaining lights of a plurality of wavelength by independently controlling the light emitting elements on the same substrate. (See Abstract, Hazemoto reference) And, the Hazemoto reference uses a temperature adjusting part having a supporting member, a temperature sensitive element to detect the

temperature of the supporting member and a thermoelectric element to heat and cool the supporting member based on information from the temperature sensitive element, as well as a heat dissipating fin to diffuse heat from the thermoelectric element. (See Abstract and Figure, Hazemoto reference) Further, the Hazemoto reference purports to independently control the oscillation wavelength of the semiconductor laser by changing the current impressed on the heat generating member.

Amended claim 18 recites:

A method for the wavelength tuning of an optoelectronic component array, the optoelectronic component array including at least two optoelectronic components, the method comprising:

comparing a respective measured wavelength of each of the at least two optoelectronic components with a respective desired characteristic wavelength so as to determine a respective wavelength deviation for each of the at least two optoelectronic components, the respective wavelength deviation being the difference between the respective measured wavelength and the respective desired characteristic wavelength of each optoelectronic component; and

selectively setting a respective resistance value of a respective resistor arrangement connected between each of the at least two optoelectronic components and a respective resistance heater associated with each of the at least two optoelectronic components so as to achieve a respective thermal change of the respective resistance heater for setting the respective desired characteristic wavelength of each of the at least two optoelectronic components.

The secondary Wakabayashi reference does not cure the deficiencies of the Hazemoto reference. The Wakabayashi reference purportedly concerns a laser wavelength controlling apparatus adapted for controlling the wavelength of a narrow-band oscillation laser beam at a high accuracy for a long period of time even if environmental conditions such as atmospheric temperature and pressure changes. (See Abstract, Wakabayashi reference) The Wakabayashi reference refers to using a reference light source for generating a reference light to measure the wavelength of an oscillated laser beam with a narrow bandwidth, a detector means for leading the oscillated laser beam and the reference light into a spectroscope serving as a wavelength detector and detecting the absolute wavelength of the oscillated laser beam; and means for controlling the wavelength selected by the wavelength selective element so that the absolute wavelength detected by the detector means may correspond to a preset wavelength. (See col. 2, lines 6-22, Wakabayashi reference)

Like the Hazemoto reference, the Wakabayashi reference does not teach or suggest the method for wavelength tuning an optoelectronic component array features of claim 18, requiring comparing a respective measured wavelength of the optoelectronic component array

with a desired characteristic wavelength so as to determine a wavelength deviation for the optoelectronic components. Moreover, the Wakabayashi reference does not teach or suggest the claim 18 method step of selectively setting a resistance value of a resistor arrangement connected between the optoelectronic components and a resistance heater associated with the optoelectronic components so as to achieve a thermal change of the resistance heater for setting the desired characteristic wavelength of the optoelectronic components.

Accordingly, Applicants respectfully submit that the Wakabayashi reference, alone or in combination with the Hazemoto reference, does not teach or suggest all of the features of claim 18, as discussed above. And since claims 19 to 27 depend from claim 18, those claims are allowable for at least the same reasons as for claim 18.

Withdrawal of the rejection under 35 U.S.C. § 103(a) of claims 18 to 27 is respectfully requested.

#### ***Applicable Law***

Moreover, to reject a claim as obvious under 35 U.S.C. § 103, the prior art must describe or suggest each claim element and it must also provide a motivation or suggestion for modifying the elements in the manner contemplated by the claim. (See Northern Telecom, Inc. v. Datapoint Corp., 908 F.2d 931, 934 (Fed. Cir. 1990), cert. denied, 111 S. Ct. 296 (1990); In re Bond, 910 F.2d 831, 834 (Fed. Cir. 1990)). The cases of In re Fine, 5 U.S.P.Q.2d 1596 (Fed. Cir. 1988), and In re Jones, 21 U.S.P.Q.2d 1941 (Fed. Cir. 1992), also make plain that a subjective "obvious to try" standard is not proper.

The Court in the case of In re Jones stated that:

**Conspicuously missing from this record is any evidence, other than the PTO's speculation (if it be called evidence) that one of ordinary skill . . . would have been motivated to make the modifications . . . necessary to arrive at the claimed [invention].**

In re Jones, 21 U.S.P.Q.2d at 1943 & 1944 (citations omitted). In short, there must be evidence of why a person having ordinary skill in the art would be motivated to modify a reference to provide the claimed subject matter of the claims.

The Federal Circuit in the case of In re Kotzab has made plain that even if a claim concerns a "technologically simple concept" -- which is not even the case here, there still must be some finding as to the "specific understanding or principle within the knowledge of a

skilled artisan" that would motivate a person having no knowledge of the claimed subject matter to "make the combination in the manner claimed", stating that:

In this case, the Examiner and the Board fell into the hindsight trap. The idea of a single sensor controlling multiple valves, as opposed to multiple sensors controlling multiple valves, is a technologically simple concept. With this simple concept in mind, the Patent and Trademark Office found prior art statements that in the abstract appeared to suggest the claimed limitation. But, there was no finding as to the specific understanding or principle within the knowledge of a skilled artisan that would have motivated one with no knowledge of Kotzab's invention to make the combination in the manner claimed. In light of our holding of the absence of a motivation to combine the teachings in Evans, we conclude that the Board did not make out a proper *prima facie* case of obviousness in rejecting [the] claims . . . under 35 U.S.C. Section 103(a) over Evans.

(See *In re Kotzab*, 55 U.S.P.Q.2d 1313, 1318 (Federal Circuit 2000) (citations omitted, italics in original, emphasis added)). Here, there have been no such findings. *In addition*, with respect to the above-identified application, Applicants request some sort of evidence and/or affidavit from the Patent Office regarding the Patent Office's assertions of what it suggests is obvious to one of ordinary skill in the art.

Applicants respectfully submit that the Hazemoto reference and the Wakabayashi reference are not combinable, and there is no motivation to combine those two references. The Hazemoto reference is concerned with obtaining lights of a plurality of wavelengths by independently controlling the temperatures of a plurality of semiconductor light emitting elements on the same substrate. (Abstract, Hazemoto reference) The Wakabayashi reference is concerned with stabilizing and controlling the absolute value of a wavelength of an oscillating laser beam with a narrow bandwidth with a high accuracy for a long period of time in the face of environmental changes. (col. 1, line 58 - col. 3, line 21, Wakabayashi reference) Those concerns present nonanalogous motivations, and thus, noncombinable motivations.

In addition, any and all arguments from Applicants' earlier responses are incorporated herein by reference.

It is therefore respectfully submitted that the claims rejected as obvious are allowable over the references relied upon in the Office Action. Thus, it is respectfully submitted that all of claims 18 to 36, as amended and presented above, are allowable for the foregoing reasons.

**CONCLUSION**

In view of all of the above, it is believed that any outstanding rejections have been obviated, and that claims 18 to 36 are allowable. It is therefore respectfully requested that the rejections be withdrawn, and that the present application issue as early as possible.

If for any reason the Examiner believes that contact with Applicants' attorney would advance the prosecution of this application, he or she is invited to contact the undersigned at the number given below.

Dated: May 20, 2004

Respectfully submitted, *By: Linda Shuster*  
*Reg. No. 47084*  
By: *Richard L. Mayer*  
Richard L. Mayer  
(Reg. No. 22,490)

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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/555,662	08/25/2000	Hartmut Hillmer	2345/117	9226
26646	7590	05/13/2004	EXAMINER	
KENYON & KENYON ONE BROADWAY NEW YORK, NY 10004			ART UNIT	PAPER NUMBER

DATE MAILED: 05/13/2004

Please find below and/or attached an Office communication concerning this application or proceeding.



## UNITED STATES PATENT AND TRADEMARK OFFICE

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09-555,642 Notice of Non-Compliant Amendment (37 CFR 1.121)

Paper No.

The amendment document filed on 4/15/04 is considered non-compliant because it has failed to meet the requirements of 37 CFR 1.121, as amended on June 30, 2003 (see 68 Fed. Reg. 38611, Jun. 30, 2003). In order for the amendment document to be compliant, correction of the following item(s) is required. Only the corrected section of the non-compliant amendment document must be resubmitted (in its entirety), e.g., the entire "Amendments to the claims" section of applicant's amendment document must be re-submitted. 37 CFR 1.121(h).

THE FOLLOWING CHECKED (X) ITEM(S) CAUSE THE AMENDMENT DOCUMENT TO BE NON-COMPLIANT:

- ☐ 1. Amendments to the specification:
- ☐ A. Amended paragraph(s) do not include markings.
  - ☐ B. New paragraph(s) should not be underlined.
  - ☐ C. Other \_\_\_\_\_
- ☐ 2. Abstract:
- ☐ A. Not presented on a separate sheet. 37 CFR 1.72.
  - ☐ B. Other \_\_\_\_\_
- ☐ 3. Amendments to the drawings: \_\_\_\_\_
- ☒ 4. Amendments to the claims:
- ☒ A. A complete listing of all of the claims is not present.
  - ☐ B. The listing of claims does not include the text of all claims (including withdrawn claims)
  - ☐ C. Each claim has not been provided with the proper status identifier, and as such, the individual status of each claim cannot be identified.
  - ☐ D. The claims of this amendment paper have not been presented in ascending numerical order.
  - ☒ E. Other: Cancelled claims should be included text not needed.

For further explanation of the amendment format required by 37 CFR 1.121, see MPEP Sec. 714 and the USPTO website at <http://www.uspto.gov/web/offices/pac/dapp/opla/prenotice/officeflyer.pdf>.

If the non-compliant amendment is a **PRELIMINARY AMENDMENT**, applicant is given **ONE MONTH** from the mail date of this letter to supply the corrected section which complies with 37 CFR 1.121. Failure to comply with 37 CFR 1.121 will result in non-entry of the preliminary amendment and examination on the merits will commence without consideration of the proposed changes in the preliminary amendment(s). This notice is not an action under 35 U.S.C. 132, and this **ONE MONTH** time limit is not extendable.

If the non-compliant amendment is a reply to a **NON-FINAL OFFICE ACTION** (including a submission for an RCE), and since the amendment appears to be a *bona fide* attempt to be a reply (37 CFR 1.135(c)), applicant is given a **TIME PERIOD** of **ONE MONTH** from the mailing of this notice within which to re-submit the corrected section which complies with 37 CFR 1.121 in order to avoid abandonment. **EXTENSIONS OF THIS TIME PERIOD ARE AVAILABLE UNDER 37 CFR 1.136(a).**

If the amendment is a reply to a **FINAL REJECTION**, this form may be an attachment to an Advisory Action. The period for response to a final rejection continues to run from the date set in the final rejection, and is not affected by the non-compliant status of the amendment.

Amanda Ford  
Legal Instruments Examiner (LIE)

571-272-1573  
Telephone No.

Rev. 10/03



**Title: METHOD AND DEVICE FOR TUNING THE WAVELENGTH OF AN OPTOELECTRONIC  
COMPONENT ARRANGEMENT Matter: 117 Client: 02345 Application No: 09/555662 (P32751  
USW 0 1329)**

K&amp;K FORM (5/00)

U.S. DEPARTMENT OF COMMERCE  
PATENT AND TRADEMARK OFFICE**REQUEST FOR CONTINUED EXAMINATION (RCE)****TRANSMITTAL FORM (37 C.F.R. § 1.114)**DOCKET NO.  
2345/117APPLICATION SERIAL NO.  
09/555,662EXAMINER  
Jeffrey N. ZahnART UNIT  
2828

## APPLICANT(S):

Hartmut HILLMER and Bernd KLEPSE

## Address to:

Commissioner for Patents  
P.O. Box 1450  
Alexandria, VA 22313-1450  
Mail Stop RCE

I hereby certify that this correspondence is being deposited with the United States Postal Service as first class mail in an envelope addressed to: Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450 on

Date: April 12, 2004

Signature:

Linda M. Shudy (Reg. no. 47,084)

This is a Request for Continued Examination under 37 C.F.R. § 1.114 (RCE) of pending application Serial No. 09/555,662 having a filing date of August 25, 2000, entitled **METHOD AND DEVICE FOR TUNING THE WAVELENGTH OF AN OPTOELECTRONIC COMPONENT ARRANGEMENT**.

The following constitute(s) the submission required by 37 C.F.R. § 1.114(a) and is (are) attached:  
 Information Disclosure Statement (as per 37 C.F.R. § 1.114(c)) (attached).  
☒ Other Submission: Amendment (attached)

1. The filing fee for this RCE and the required amendment/submission is calculated below. The fee below is calculated based on the status of the claims after the entry of the attached amendment/submission. The fee for any new additional claims is included with this RCE, the fee for previously entered additional claims having already been paid.

	CLAIMS REMAINING AFTER AMENDMENT	MINUS	HIGHEST NUMBER PREVIOUSLY PAID FOR	PRESENT NUMBER EXTRA*	RATE (\$) PER CLAIM	FEE (\$)
BASIC FEE						770.00
TOTAL CLAIMS	19	20	19	0	18.00	0.00
INDEPENDENT CLAIMS	2	3	2	0	86.00	0.00
MULTIPLE DEPENDENT CLAIM	0	0	0	0	280.00	0.00
				Number extra must be zero or larger	TOTAL	770.00

K&amp;K FORM (5/00)

U.S. Patent App. Ser. No. 09/555,662

2. Please charge the required RCE and Submission filing fee of \$770.00 to the deposit account number 11-0600 of Kenyon & Kenyon.
3. The Commissioner is hereby authorized to charge the 37 C.F.R. § 1.136(a) five-month extension fee, which is believed to be \$2010.00, to the deposit account number 11-0600 of Kenyon & Kenyon. The Commissioner is hereby authorized, as necessary and/or appropriate, to charge payment of the fees (including any additional and/or extension fees) required, associated with this communication or arising during the pendency of this application, and/or to credit any overpayment, to the deposit account number 11-0600 of Kenyon & Kenyon.
4. Three duplicate copies of this Transmittal Form are enclosed for the above purposes.

Respectfully submitted,

By: Inda J. Sanders  
Reg. No. 47084Dated: April 12, 2004

By:

Richard L. Mayer

Richard L. Mayer (Reg. No. 22,490)

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[2345/117]

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

Applicant(s) : HILLMER et al.  
Serial No. : 09/555,662  
Filed : August 25, 2000  
Title : METHOD AND DEVICE FOR TUNING THE  
WAVELENGTH OF AN OPTOELECTRONIC  
COMPONENT ARRANGEMENT  
Art Unit : 2828  
Examiner : Jeffrey N. Zahn

Commissioner for Patents  
P.O. Box 1450  
Alexandria, VA 22313-1450  
Mail Stop RCE

I hereby certify that this correspondence is being deposited with the  
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to: Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-  
1450, on

Date: April 12, 2004

Signature: Linda M. Shudy  
Linda M. Shudy (Reg. no. 47,084)

AMENDMENT

SIR:

In response to an Advisory Action mailed on November 21, 2003 and in conjunction  
with Applicants' Request For Continued Examination being filed herewith, please consider  
the above-identified application based on the following amendments and remarks.

Amendments to the Claims are reflected in the listing of claims, which begins on  
page 2 of this paper.

Remarks begin on page 5 of this paper.

**AMENDMENTS TO THE CLAIMS:**

This listing of claims will replace all prior versions, and listings, of claims in the application:

**LISTING OF CLAIMS:**

18. (Currently Amended) A method for the wavelength tuning of an optoelectronic component array, the optoelectronic component array including at least two optoelectronic components, the method comprising:

comparing a respective measured wavelength of each of the at least two optoelectronic components with a respective desired characteristic wavelength so as to determine a respective wavelength deviation for each of the at least two optoelectronic components, the respective wavelength deviation being the difference between the respective measured wavelength and the respective desired characteristic wavelength of each optoelectronic component; and

selectively setting changing a respective resistance value of a respective resistor arrangement connected between each of the at least two optoelectronic components and a respective resistance heater associated with each of the at least two optoelectronic components so as to achieve a respective thermal change of the respective resistance heater for setting the respective desired characteristic wavelength of each of the at least two optoelectronic components.

19. (Currently Amended) The method as recited in claim 18 wherein the selectively setting changing is performed using circuitry.

20. (Currently Amended) The method as recited in claim 18 wherein the selectively setting changing is performed by changing a respective material of a respective resistor arrangement.

21. (Previously Presented) The method as recited in claim 20 wherein the changing a respective material of the respective resistor arrangement is performed by removing or applying the respective material.

22. (Currently Amended) The method as recited in claim 18 wherein the selectively setting changing is performed using laser ablation.

23. (Currently Amended) The method as recited in claim 18 wherein the selectively setting changing is performed using heat treatment.
24. (Currently Amended) The method as recited in claim 18 wherein the selectively setting changing is performed using at least one of a chemical and an electrochemical treatment.
25. (Currently Amended) The method as recited in claim 18 wherein the selectively setting changing is performed using at least one of particle implantation, electromagnetic radiation and particle radiation.
26. (Currently Amended) The method as recited in claim 18 wherein the selectively setting changing is performed using an electrical signal.
27. (Previously Presented) The method as recited in claim 18 wherein the method is performed at regular intervals.
28. (Currently Amended) A device for the wavelength tuning of an optoelectronic component array having at least two optoelectronic components, the device comprising:  
a respective at least one resistance heater associated with each of the at least two optoelectronic components for setting a respective characteristic wavelength of the respective optoelectronic component;  
a common voltage or current source; and  
a respective resistor arrangement connected between each respective at least one resistance heater and the common voltage or current source, a respective total resistance of each respective resistor arrangement being variable so as to allow for wavelength tuning, the wavelength tuning being effected by changing the respective total resistance.
29. (Previously Presented) The device as recited in claim 28 wherein each respective resistor arrangement includes respective individual resistors disposed in a respective resistor array.
30. (Previously Presented) The device as recited in claim 28 wherein respective resistors of each respective resistor arrangement are connected between a respective contact fields disposed in rows, the respective resistors being arranged in a fixed order with regard to their



respective resistance values, a respective total resistance of each respective resistor arrangement being achieved using the respective contact fields.

31. (Previously Presented) The device as recited in claim 30 wherein the respective total resistance of each respective resistor arrangement is achieved using bond connections.

32. (Previously Presented) The device as recited in claim 29 wherein respective resistors of each respective resistor arrangement are connected between respective contact fields disposed in respective rows, a respective resistors being arranged in a fixed order with regard to their respective resistance values, the respective total resistance of each respective resistor arrangement being achieved using the respective contact fields, and wherein the respective contact fields include a plurality of bond pads for attachment of electric leads.

33. (Previously Presented) The device as recited in claim 28 wherein respective resistors of the respective resistor arrangements include at least one of metal, non-metal, semiconductor material, liquid, gel, ceramic, oxide, metal-matrix compound, liquid crystals and polymers.

34. (Previously Presented) The device as recited in claim 28 wherein the at least two optoelectronic components are disposed on a first body and at least a portion of the respective resistor arrangements are disposed on at least one second body.

35. (Previously Presented) The device as recited in claim 34 wherein the first body includes semiconductor materials and the at least one second body includes an insulator.

36. (Previously Presented) The device as recited in claim 36 wherein each of the at least two optoelectronic components includes at least one of a solid-state laser, an optical amplifier, a filter, a wavelength multiplexer and a waveguide.

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Applicants have amended claim 18 above for further clarification purposes. No new matter has been added. Claim 18 was amended to recite "the respective wavelength deviation being the difference between the respective measured wavelength and the respective desired characteristic wavelength of each optoelectronic component" and "selectively setting a respective resistance value.... so as to achieve a respective thermal change of the respective resistance heater for setting the respective desired characteristic wavelength of each of the at least two optoelectronic components." Claims 19, 20, and 22 to 26 were amended to recite proper antecedent bases in light of the amendment(s) to claim 18. No new matter has been added.

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Applicants believe that the amendments to claim 18 and claim 28 further clarify any indefiniteness identified by the Examiner, and that Applicants' amendments to claim 18 and claim 28 define the subject matter with a reasonable degree of particularity and distinctness. If the claims are still found to be indefinite, Applicants respectfully encourage and request that the Examiner suggest possible claim language to Applicants to improve the clarity or

precision of the language used, as recommended in the MPEP. See MPEP §2173.02.

Accordingly, Applicants respectfully submit that amended claims 18 and 28, and their dependent claims 19 to 27 and 29 to 36 are allowable, and request withdrawal of the rejection under 35 U.S.C. § 112, second paragraph, of claims 18 and 28, and their dependent claims 19 to 27 and 29 to 36

### 35 U.S.C. § 103(a)

The rejection under 35 U.S.C. § 103(a) over Japanese Patent No. 59-204292 to Hazemoto et al. ("Hazemoto reference") of claims 28 to 36 was maintained in the Advisory Action.

The Hazemoto reference (according to the Abstract and Figures provided with the Office Action) purportedly concerns a semiconductor device in which the temperatures of a plurality of semiconductor light emitting elements on the same substrate are independently controlled "to obtain lights of a plurality of wavelengths." The Hazemoto reference refers to using an array of semiconductor elements on a substrate where a heating part independently provided to each laser has an insulation member, a heat generating member, an electrode and a protection film. Apparently, the temperature adjusting part has a supporting member, a temperature sensitive element detecting the temperature of the supporting member, a thermoelectric element heating and cooling the member based on information from the temperature sensitive element, and a heat dissipating fin to diffuse heat from the thermoelectric element to the atmosphere. (See Abstract, Hazemoto reference). The oscillation wavelength of the semiconductor laser is purportedly independently controlled by changing the current impressed on its heat generating member. (See Abstract, Hazemoto reference).

Amended claim 28 recites:

A device for the wavelength tuning of an optoelectronic component array having at least two optoelectronic components, the device comprising:

- a respective at least one resistance heater associated with each of the at least two optoelectronic components for setting a respective characteristic wavelength of the respective optoelectronic component;

- a common voltage or current source; and

- a respective resistor arrangement connected between each respective at least one resistance heater and the common voltage or current source, a respective total resistance of each respective resistor arrangement being variable so as to allow for wavelength tuning, the wavelength tuning being effected by changing the respective total resistance.

In contrast, the Hazemoto reference does not teach or suggest the features of claim 28, including 1) requiring a device having a respective resistance heater associated with each of the at least two optoelectronic components, the respective resistance heater being used for setting a respective characteristic wavelength of the optoelectronic component. Further, the Hazemoto reference also does not teach or suggest 2) using a respective resistor arrangement connected between a resistance heater and a common voltage or current source, nor does the Hazemoto reference teach 3) varying the total resistance of the resistor arrangement so as to allow for wavelength tuning. In fact, the Hazemoto reference apparently teaches a method for obtaining lights of a plurality of wavelength by independently controlling the light emitting elements on the same substrate. (See Abstract, Hazemoto reference) And, the Hazemoto reference uses a temperature adjusting part having a supporting member, a temperature sensitive element to detect the temperature of the supporting member and a thermoelectric element to heat and cool the supporting member based on information from the temperature sensitive element, as well as a heat dissipating fin to diffuse heat from the thermoelectric element. (See Abstract and Figure, Hazemoto reference) Further, the Hazemoto reference purports to independently control the oscillation wavelength of the semiconductor laser by changing the current impressed on the heat generating member. ***Thus, the Hazemoto reference does not teach or describe at least THREE features as recited in claim 28.***

***Further, Applicants respectfully submit that In re Stevens does not apply here. Applicants believe that the Advisory Action is misguided in stating that "it would have been obvious to one of ordinary skill in the art... to modify Hazemoto et al. to include variable resistance arrangements to vary the heat of the laser diodes and therefore the wavelength, since it has been held that the provision of adjustability, where needed, involves only routine skill in the art. In re Stevens, 101 USPW 284 (CCPA 1954). In re Stevens, 101 USPQ 284 (CCPA 1954) concerns an elongated reel-supporting body having a hand grip which is universally adjustable and a finger grip which is longitudinally adjustable. Id. at 285. The question presented in the In re Stevens case is "whether or not the two mentioned differences from the conventional fishing rod produce a combination not suggested by the prior art and whether the result of such combination is not inherent in either of said adjustments." (Emphasis added). Id. The CCPA held that the use of the adjustable handgrips were suggested by the patents cited in the case. Id. This is not the situation in the present application. Instead, the Advisory Action inadvertently attempts to "create" at least THREE additional features out of thin air, namely, 1) requiring a device having a respective resistance***

heater associated with each of the at least two optoelectronic components, the respective resistance heater being used for setting a respective characteristic wavelength of the optoelectronic component; 2) using a respective resistor arrangement connected between a resistance heater and a common voltage or current source; and 3) varying the total resistance of the resistor arrangement so as to allow for wavelength tuning, as in claim 28.

Accordingly, Applicants respectfully submit that the Hazemoto reference does not teach or suggest all of the features of claim 28, as discussed above. And since claims 29 to 36 depend from claim 28, those claims are allowable for the same reasons as for claim 28. Withdrawal of the rejection of claims 28 to 36 is respectfully requested.

The rejection under 35 U.S.C. § 103(a) over the Hazemoto reference in view of U.S. Patent No. 5,373,515 to Wakabayashi ("Wakabayashi reference") of claims 18 to 27 was maintained in the Advisory Action.

Claim 18 recites features analogous to those of claim 28. Accordingly, claim 18 is allowable for essentially the same reasons as claim 28, as outlined above and discussed below. In particular, the Hazemoto reference does not teach or suggest the method for wavelength tuning an optoelectronic component array features of claim 18, requiring comparing a respective measured wavelength of the optoelectronic component array with a desired characteristic wavelength so as to determine a wavelength deviation for the optoelectronic components. Moreover, the Hazemoto reference does not teach or suggest the claim 18 method step of selectively setting a resistance value of a resistor arrangement connected between the optoelectronic components and a resistance heater associated with the optoelectronic components so as to achieve a thermal change of the resistance heater for setting the desired characteristic wavelength of the optoelectronic components. Instead, the Hazemoto reference apparently teaches a method for obtaining lights of a plurality of wavelength by independently controlling the light emitting elements on the same substrate. (See Abstract, Hazemoto reference) And, the Hazemoto reference uses a temperature adjusting part having a supporting member, a temperature sensitive element to detect the temperature of the supporting member and a thermoelectric element to heat and cool the supporting member based on information from the temperature sensitive element, as well as a heat dissipating fin to diffuse heat from the thermoelectric element. (See Abstract and Figure, Hazemoto reference) Further, the Hazemoto reference purports to independently control the oscillation wavelength of the semiconductor laser by changing the current impressed on the

heat generating member.

Amended claim 18 recites:

A method for the wavelength tuning of an optoelectronic component array, the optoelectronic component array including at least two optoelectronic components, the method comprising:

comparing a respective measured wavelength of each of the at least two optoelectronic components with a respective desired characteristic wavelength so as to determine a respective wavelength deviation for each of the at least two optoelectronic components, the respective wavelength deviation being the difference between the respective measured wavelength and the respective desired characteristic wavelength of each optoelectronic component; and

selectively setting a respective resistance value of a respective resistor arrangement connected between each of the at least two optoelectronic components and a respective resistance heater associated with each of the at least two optoelectronic components so as to achieve a respective thermal change of the respective resistance heater for setting the respective desired characteristic wavelength of each of the at least two optoelectronic components.

The secondary Wakabayashi reference does not cure the deficiencies of the Hazemoto reference. The Wakabayashi reference purportedly concerns a laser wavelength controlling apparatus adapted for controlling the wavelength of a narrow-band oscillation laser beam at a high accuracy for a long period of time even if environmental conditions such as atmospheric temperature and pressure changes. (See Abstract, Wakabayashi reference) The Wakabayashi reference refers to using a reference light source for generating a reference light to measure the wavelength of an oscillated laser beam with a narrow bandwidth, a detector means for leading the oscillated laser beam and the reference light into a spectroscope serving as a wavelength detector and detecting the absolute wavelength of the oscillated laser beam; and means for controlling the wavelength selected by the wavelength selective element so that the absolute wavelength detected by the detector means may correspond to a preset wavelength. (See col. 2, lines 6-22, Wakabayashi reference)

Like the Hazemoto reference, the Wakabayashi reference does not teach or suggest the method for wavelength tuning an optoelectronic component array features of claim 18, requiring comparing a respective measured wavelength of the optoelectronic component array with a desired characteristic wavelength so as to determine a wavelength deviation for the optoelectronic components. Moreover, the Wakabayashi reference does not teach or suggest the claim 18 method step of selectively setting a resistance value of a resistor arrangement connected between the optoelectronic components and a resistance heater associated with the optoelectronic components so as to achieve a thermal change of the resistance heater for

setting the desired characteristic wavelength of the optoelectronic components.

Accordingly, Applicants respectfully submit that the Wakabayashi reference, alone or in combination with the Hazemoto reference, does not teach or suggest all of the features of claim 18, as discussed above. And since claims 19 to 27 depend from claim 18, those claims are allowable for at least the same reasons as for claim 18.

Withdrawal of the rejection under 35 U.S.C. § 103(a) of claims 18 to 27 is respectfully requested.

#### ***Applicable Law***

Moreover, to reject a claim as obvious under 35 U.S.C. § 103, the prior art must describe or suggest each claim element and it must also provide a motivation or suggestion for modifying the elements in the manner contemplated by the claim. (See Northern Telecom, Inc. v. Datapoint Corp., 908 F.2d 931, 934 (Fed. Cir. 1990), cert. denied, 111 S. Ct. 296 (1990); In re Bond, 910 F.2d 831, 834 (Fed. Cir. 1990)). The cases of In re Fine, 5 U.S.P.Q.2d 1596 (Fed. Cir. 1988), and In re Jones, 21 U.S.P.Q.2d 1941 (Fed. Cir. 1992), also make plain that a subjective "obvious to try" standard is not proper.

The Court in the case of In re Jones stated that:

Conspicuously missing from this record is any evidence, other than the PTO's speculation (if it be called evidence) that one of ordinary skill . . . would have been motivated to make the modifications . . . necessary to arrive at the claimed [invention].

In re Jones, 21 U.S.P.Q.2d at 1943 & 1944 (citations omitted). In short, there must be evidence of why a person having ordinary skill in the art would be motivated to modify a reference to provide the claimed subject matter of the claims.

The Federal Circuit in the case of In re Kotzab has made plain that even if a claim concerns a "technologically simple concept" -- which is not even the case here, there still must be some finding as to the "specific understanding or principle within the knowledge of a skilled artisan" that would motivate a person having no knowledge of the claimed subject matter to "make the combination in the manner claimed", stating that:

In this case, the Examiner and the Board fell into the hindsight trap. The idea of a single sensor controlling multiple valves, as opposed to multiple sensors controlling multiple valves, is a technologically simple concept. With this simple concept in

mind, the Patent and Trademark Office found prior art statements that in the abstract appeared to suggest the claimed limitation. But, there was no finding as to the specific understanding or principle within the knowledge of a skilled artisan that would have motivated one with no knowledge of Kotzab's invention to make the combination in the manner claimed. In light of our holding of the absence of a motivation to combine the teachings in Evans, we conclude that the Board did not make out a proper *prima facie* case of obviousness in rejecting [the] claims . . . under 35 U.S.C. Section 103(a) over Evans.

(See *In re Kotzab*, 55 U.S.P.Q.2d 1313, 1318 (Federal Circuit 2000) (citations omitted, italics in original, emphasis added)). Here, there have been no such findings. *In addition*, with respect to the above-identified application, Applicants request some sort of evidence and/or affidavit from the Patent Office regarding the Patent Office's assertions of what it suggests is obvious to one of ordinary skill in the art.

Applicants respectfully submit that the Hazemoto reference and the Wakabayashi reference are not combinable, and there is no motivation to combine those two references. The Hazemoto reference is concerned with obtaining lights of a plurality of wavelengths by independently controlling the temperatures of a plurality of semiconductor light emitting elements on the same substrate. (Abstract, Hazemoto reference) The Wakabayashi reference is concerned with stabilizing and controlling the absolute value of a wavelength of an oscillating laser beam with a narrow bandwidth with a high accuracy for a long period of time in the face of environmental changes. (col. 1, line 58 - col. 3, line 21, Wakabayashi reference) Those concerns present nonanalogous motivations, and thus, noncombinable motivations.

In addition, any and all arguments from Applicants' earlier responses are incorporated herein by reference.

It is therefore respectfully submitted that the claims rejected as obvious are allowable over the references relied upon in the Office Action. Thus, it is respectfully submitted that all of claims 18 to 36, as amended and presented above, are allowable for the foregoing reasons.

### CONCLUSION

In view of all of the above, it is believed that any outstanding rejections have been obviated, and that claims 18 to 36 are allowable. It is therefore respectfully requested that the rejections be withdrawn, and that the present application issue as early as possible.



If for any reason the Examiner believes that contact with Applicants' attorney would advance the prosecution of this application, he or she is invited to contact the undersigned at the number given below.

Dated: April 12, 2004

Respectfully submitted,

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